MODIS sensor Working Group (MsWG) Summary

Attendance: Farida Adimi, Suraiya Ahmad, Roger Drake, Wayne Esaias, Eddie Kearns, Vince Salomonson, Junqiang Sun, Gary Toller, Jack Xiong, Eric Vermote, Ed Zalewski, Zhengming Wan, Joe Esposito

Scheduled Items

- **FM1 SWIR bands (5-7) sub-frame difference issue**. (Jack)

  The data sets used for the analysis are: a. TRW: SRCA; TVIII: RC02; TVII: RC01

  SRCA radiometric mode – PFM on-orbit and FM1 at TRW.

  Single level comparison with dn ~ 2000

  PFM: SF difference ~ 1.5 %; FM1: SF difference ~ 0.5% (FM1 tested on both Aside and Bside at TRW

  (EV) After the resistor change expected no SF difference for FM1.

  (JX) There is still ~10 DN SF difference depending upon the dn level.

  TVII RC01 radiometric mode, SF difference as function of response.

  For B5 SF difference < 0.2% at dn = 3000.

  For B6 non-functional D7, D19 and some detectors are near saturation.

  For B7 SF difference is similar to B5

  (EV) Will any of these results be used for corrections (to PFM)?

  (JX) No. The results are for FM1. No algorithm exists for SF difference correction for PFM or FM1. MCST has not developed an SF correction algorithm. But could look into it if requested. SFs are calibrated separately.

  TVIII RC02: Comparisons of FM1 to PFM SF difference for varying BB temp.

  BB temp ranges, PFM on-orbit: T = [270°K-315°K]; FM1 in TV: T = [170°K-340°K].

  The SF difference clearly smaller for FM1 compared to PFM.

  For FM1 both SFs increase with BB temperature, however for PFM one SF increases while the other SF decreases.

  Conclusion: Xtalk, both electrical and optical, is much less of a concern for FM1 than for PFM.

- **MODIS/MOBY comparison update (Wayne/Ed)**

  Time series broken into three epochs: Side A, Side B, and Side A2.

  The problems due to the Earth-Sun distance correction have been eliminated.

  Optical data from MOBY and from MOCE (lower uncertainty than MOBY).

  (JX) Why not use only MOCE data?

  (EK) There is little good MOCE data.

  Normalized water leaving radiances are used:

  One observation on day 2000102 for Side A (MOBY), two observations on days 2000345 and 2000346, averaged, for Side B (MOBY) day, and one observation for Side A2 (MOCE). For Side A and B MOCE agrees well with MOBY.

  (EV) What adjustment is made to the MCST calibration?

  (EK) This is in addition to the MCST calibration.

  (EV) Then it is less than a 1% adjustment.

  (EK) In total L space ~ 10%.

  (WE) Do you have a list of the values used?

  (JX) 10% difference to MOBY implies 1% to the MCST calibration.

(EK) The stray light correction for MOBY is estimated. The results are very flat which is encouraging. We do not cover the bands much above 600nm.

(WE) To clarify, for bands 13, 14 and above the MOBY data becomes unreliable and MOCE must be used.

(EV) I would like to apply your adjustment to aerosol analysis.

(WE) EK has already normalized MOBY data. Is it single pixel or 3x3 pixel average?

(JX) MCST would like a copy of the analysis results for the 3x3 pixel average.

(EK) The data quality used is quality 1 and 2. We are removing x-scan analytically (current work).

(WE) EK should produce a table of correction terms to m1.

(EK) I will send a coefficient table.

- **CP reset evaluation summary (Roger)**

    SBRS have been conducting tests on FM1 boards for the past several weeks and have identified the cause of the CPA resets. A clock caused a counter line to be held high for too long a period.

    (JX) Is the repair difficult?

    (RD) No. The paper work for the simple repair is currently progressing through channels. CPB was not affected due to the slot the board is in.

      For CPA, temperature induced a change of applied voltage. Tests yield that a change of 50 mV results in CPA reset rate of 5 per second. Test software at card level, adjust to low T and low supply voltage but resets occur.

    (WE) Which boards were removed?

    (RD) Only the CPA boards. We have a mandate to repair CPB and formatter boards with repairs to CPA. The project requires an assessment of schedule and risk from SBRS.

    (WE) Recommendation is to repair the formatter boards. What is the impact of not repairing the formatter boards?

    (RD) We know we can use software to handle PFM but do not know the impact of not repairing the formatter on FM1. Repairs depend mainly on the schedule.

    (WE) Since we understand the formatter, do we have an assessment of the data fidelity on PFM? Now is the time to speak up about needed repairs and oceans has not recently been concerned with data fidelity.

    (JX) There may be a side dependent dn difference.

    (RD) Software patch prevents formatter resetting.

    (JX) MCST can revisit forced reset data.

    (RD) For true resets, we see we see mirror side to mirror side and sector to sector problems but this is currently prevented by the software patch in PFM.

Around the Table

Participant: Suraiya Ahmad: Processing Status: Reprocessing: July 27; Forward Processing: October 27. Finished processing 2001301 and 2001305 is completed and data delivered.

Participant: Zhengming Wan: We see improvement due to correction of the SWIR bands

Participant: Jack Xiong: The MsWG meeting on November 21 is cancelled due to the Thanksgiving holiday.

MCST workshop at Science Team meeting 9:00-17:00 on the 17th. We will have the room 18:00-21:00 for informal discussion on technical issues. We will send out presentation packages 7-10 days in advance